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**SN 67219  
V512.99.RRT-223  
3 November 1999**

**Mr. Gregory Nichols  
Naval Research Laboratory  
4555 Overlook Ave., S. W.  
Washington, D. C. 20375-5320**

**Subject: CDRL Item 0001, Monthly Progress Report**

**Reference: Contract N00014-97-C-2033, "12-Bit High Dynamic Range ADC"**

**Dear Gregory:**

In accordance with the referenced contract, enclosed is the Monthly Progress Report for the period of 15 September 1999 to 15 October 1999.

If I can be of any further assistance, please contact me at (310) 814-5867. Thank you for your consideration.

**Sincerely,**

*Rhona Taylor*

**Rhona Taylor  
Contracts Specialist**

**Enclosure: as stated**

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*Monthly Report for*

## **12-Bit High Dynamic Range ADC**

Reporting Period: 15 September 1999 to 15 October 1999

NRL Contract No. N00014-97-C-2033

TRW Sales No. 67219

Prepared for:

Gregory M. Nichols

Naval Research Lab

Code: 5725

4555 Overlook Ave., S.W.

Washington, D.C. 20375-5320

Submitted by:

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## 1.0 Technical Progress

During this reporting period, fabrication of the all-level ADC design iteration continued. In addition, fabrication of the ADC MCM is in progress, and the assembly of the MCM test fixture was initiated.

Figure 1 shows a simplified process flow diagram for the TRW GaAs HBT technology. The first lot of all-level design iteration wafers (6 total) is currently at backside via etch (step 17 of 18). Due to the significant backlog of wafers in the backside processing area, progress of the ADC lot has been very slow. A request for "Hot Lot" status was requested (and granted) to expedite the completion of the ADC lot. The second lot has completed isolation implant (step 6 of 18), and has been placed on hold as a backup.

The ADC MCM fabrication is in progress. MCM delivery is still scheduled for early November, 1999. Figure 2 shows an updated program schedule. The final delivery of MCMs is now projected to be 1/31/2000.

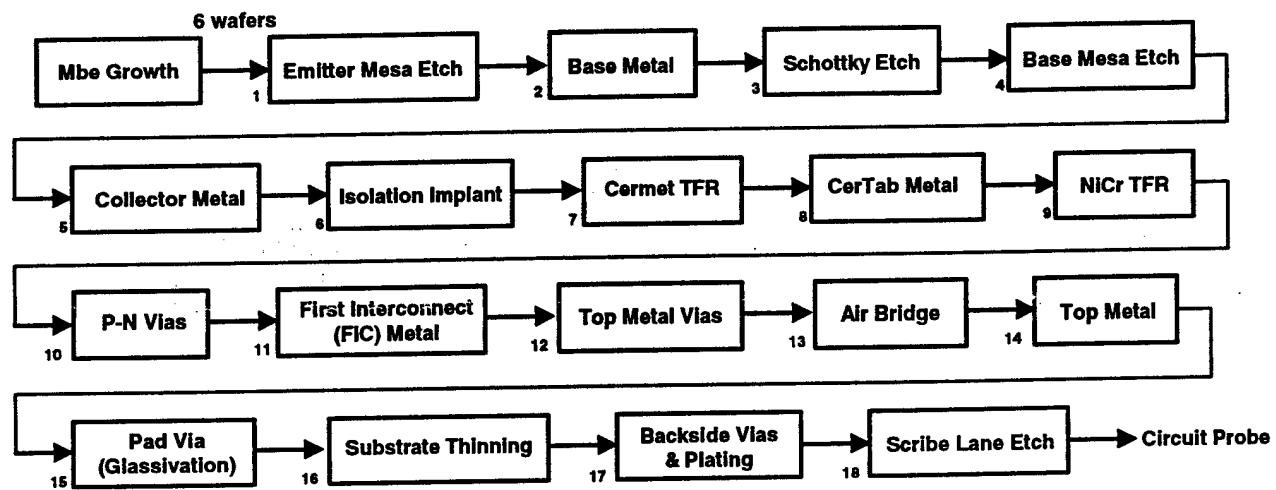


Figure 1. Simplified Process Flow Diagram for TRW's Advanced GaAs HBT Technology.

## 2. Plans for Next Reporting Period

During the next reporting period, wafer fabrication of the all-level ADC design iteration (first lot) will be completed, and wafer probing initiated. In addition, the ADC MCM fabrication and the MCM test fixture fabrication will both be completed.

## 3. Financial Status

Table 1 shows the forecasted versus actual expenditures for the Phase 2 program. At month-end September, 1999 the cumulative actuals were \$425.6K versus a forecast of \$540.3K (an underrun of \$115K). However, there are \$49.3K of un-booked commitments associated with MCM material and test fixture purchases. The remaining underrun reflects the MCM schedule slip which has delayed the MCM test activities.

Table 1. Phase 2 Expenditures Forecast

Month	Monthly Total (\$K)	Cumulative Total (\$K)	Cumulative Actuals (\$K)	Delta (Forecast - Actuals)
Mar-99	65.0	65.0	56.9	8.1
Apr-99	109.4	174.4	133.0	41.4
May-99	100.8	275.2	191.2	84.0
Jun-99	107.5	382.7	275.1	107.6
Jul-99	45.9	428.6	356.1	72.5
Aug-99	32.1	460.7	401.5	59.2
Sep-99	79.6	540.3	425.6	114.7
Oct-99	74.6	614.9		
Nov-99	27.0	641.9		
Dec-99	15.1	657.0		

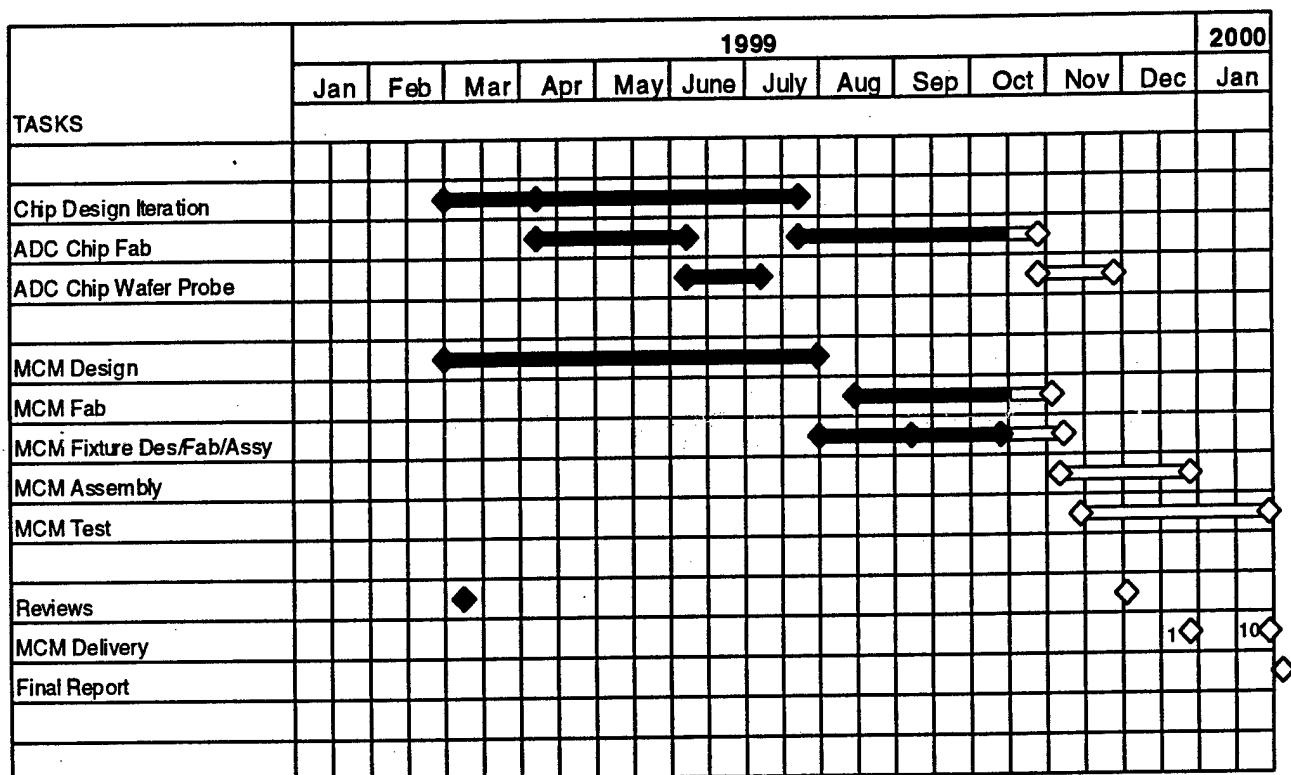


Figure 2. Development Schedule for Phase 2 Activities.

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J. Keith

DTIC Point of Contact

17 Nov 99

Date